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# **THE AUTOMOTIVE INDUSTRY SUPPLY CHAIN CASE COMPETITION: A UNIVERSITY AND INDUSTRY PARTNERSHIP**

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## **ABSTRACT**

The importance of business schools collaborating with industry, and especially local companies, is self-evident. One way that the Global Supply Chain Management Program in the Mike Ilitch School of Business at Wayne State University has collaborated with General Motors and several major suppliers, and potential employers of students, is through an automotive industry supply chain management (SCM) case competition. In 2016, the Global Supply Chain Management Program, along with General Motors, will host the 6<sup>th</sup> annual General Motors/Wayne State University Supply Chain Case Competition. Supply Chain Management students from universities around the world travel to Detroit, MI to participate in the competition and learn about the global automotive industry. In addition to the competition, students tour an automotive assembly plant and network with industry executives and young managers. General Motors and other sponsoring companies utilize the competition to recruit top talent for entry level supply chain management positions, and to help with the education of students. Wayne State and its students benefit from increased exposure to companies with benefits relating to research, faculty recruiting, placement of students, and general development of the Wayne State SCM brand name. This article discusses the nature of the competition and the competitors, issues involved in producing such an event, the costs, and other benefits and challenges related to hosting such a competition.

## **INTRODUCTION**

In early 2011, faculty from the Global Supply Chain Program at the Mike Ilitch School of Business presented General Motors with a proposal for a case competition that would bring students from between 10 and 20 universities to Detroit to learn about the automotive industry and about career opportunities in the field. General Motors executives realized the benefit of the competition, and worked with Wayne State to help the university secure additional sponsors. Each of these suppliers; Delphi, Lear, and Ryder; has significant operational interests in Detroit. Since 2011, the General Motors/Wayne State Supply Chain Case Competition has expanded to as many as 23 universities spanning the globe. In 2015, international universities participating in the competition were Wuhan University (China), Monterrey Technological University (Mexico), and the International University of Logistics and Transport in Wroclaw (Poland). United States universities participating in the competition ranged

from Rutgers University in the east to Weber State University in the west. See Table 1 for the complete list of universities participating in 2015.

In this article we discuss the nature of the competition and the competitors, other competitions, issues involved in producing such an event, the costs, and other benefits and challenges related to hosting such a competition.

## **OTHER CASE COMPETITIONS**

There are many business competitions offered around the world, and a good number focusing on supply chain management.

One of the oldest supply chain management competitions currently existing is "Operation Stimulus", held by the Denver Transportation Club of Denver, CO (Operation Stimulus, 2016). The Operation Stimulus Case Competition began in 1992, and approximately sixteen schools compete. The students receive the case about a month prior to the event. Universities are divided into four

**TABLE 1**  
**UNIVERSITIES PARTICIPATING IN 2015 GENERAL MOTORS/WAYNE STATE**  
**UNIVERSITY**  
**AUTOMOTIVE INDUSTRY SUPPLY CHAIN CASE COMPETITION**

Bowling Green State University
Colorado State University
Grand Valley State University
Florida State University
Michigan State University
Penn State University
Rutgers University
West Virginia University
Northern Iowa University
Howard University
Indiana University – Indianapolis
Lehigh University
Miami University (Ohio)
Western Michigan University
Weber State University
University of North Dakota
Ohio State University
Wuhan University (China)
Tecnológico de Monterrey (Mexico)
Intl. University of Logistics and Transport (Poland)
Wayne State University

groups of schools – which are called “regionals”. The four schools in each regional compete against each other by analyzing and solving a “real world” supply chain case and presenting their case analysis to industry executives. Students receive the case approximately one month prior to the competition to analyze and prepare the presentation. One winner is selected from each regional and the finals are held the next day with a slight modification to the case, which they call a “twist”. The twist is a disruption such as a storm or strike or government regulation that disrupts the current system. The twist tests which team of students can respond to uncertainty and how robust the initial proposal is to uncertainty. Judges evaluate the student’s presentations and make a determination of the winner.

An alternative approach to a competition, hosted by the Broad Business School of Michigan State

University, is a simulation game where teams of students make operational decisions for businesses which are in competition with other businesses in the simulation game (Bowersox, 2016). This competition is held for MBA and undergraduate students, though they attend the competition during different weeks in October. Unlike case competitions, the teams accrue points in the simulation game and the winner is determined by the final accumulated game points.

The Big Ten Supply Chain Case Competition held at Rutgers University hosts undergraduates and MBAs together during March (Big Ten, 2016). The undergraduates and MBAs compete separately, as they do at the Michigan State Simulation challenge, although they attend at the same time. Teams receive the case about one week prior to the event to prepare their presentations.

**TABLE 2**  
**SUPPLY CHAIN ORIENTED CASE COMPETITIONS**

<b>Competition Title</b>	<b>Lead Organization</b>	<b>Location</b>	<b>Inaugural Year</b>	<b>MBA/UG</b>	<b>Key Corp. Sponsors</b>	<b>Competition Format</b>
Operations Stimulus <sup>*</sup>	Transportation Club of Denver	Denver, CO	1998	Undergrad	Website lists 17 Sponsors	Case provided 1 month prior. Industry Judges.
Walton College of Business Logistics Case Competition	Supply Chain Management Research Center	Bentonville, AR	2005	MBA	Sam's Club, Walmart, ABF Freight, FedEx	Case presented after arrival. Industry Judges.
Bowersox Supply Chain Challenge	Broad Business School, Michigan State University	East Lansing, MI	2009	Undergrad/ MBA	Website lists 9 sponsors	University teams enter data in simulation game.
IANA Logistics and SC Management Case Competition	G	Jacksonville, FL (Univ. of N. FL)	2009	Undergrad	None	Case provided 1 week prior. Industry Judges.
General Motors / Wayne State C Case Competition	Mike Ilitch School of Business, General Motors	Detroit, MI	2011	Undergrad	General Motors, Lear, Denso, Ryder, Westinghouse	Case provided 1 month prior. Industry Judges
Big 10 plus Supply Chain Case Competition	Rutgers University	New Brunswick, NJ	2015	Undergrad/ MBA	Website lists 16 sponsors	Case provided 1 week prior. Industry judges.
Weber State University Supply Chain Case Competition	Center for Supply Chain Excellence – John B. Goddard School of Business & Economics	Ogden, UT	2016	Undergrad	Orbital ATK, Northrup Grumman, O.C. Tanner	Case presented to teams after arrival at competition. Industry Judges.
National Undergraduate Supply Chain and Operations Case	Arizona State University Supply Chain Management Association	Tempe, AZ	2014	Undergrad	Starbucks	Students receive case after arrival. Present results to industry judges.
National Undergraduate SC Case Competition	U. of Minnesota Supply Chain and Operations Dept.	Minneapolis, MN	2013	Undergrad	Land O'Lakes, 3M, Cargill, C.H. Robinson, FedEx	Case after arrival. Industry Judges.

Other notable case competitions (National, 2016) are at Arizona State, at Ohio State University, the University of Minnesota, Weber State University (Weber State, 2016), and at Pennsylvania State University.

## **OBJECTIVES, IMPACT AND DIFFERENTIATION**

In order to secure support from businesses for the case competition, the purpose and expected benefits needed to be spelled out to them. Goals for Wayne State – the host university, supporting businesses and the city of Detroit were identified as follows:

- For WSU - The goal of the Global Supply Chain Management Program at the School of Business Administration is to become recognized as one of the top Supply Chain Programs in the United States. The Program is focusing on complex manufacturing and the automotive industry in particular as a major target market, and is trying to differentiate its program with offerings that uniquely cater to this type of industry. The competition is one of the initiatives that we are undertaking to give us the exposure and prominence to help us achieve that goal. The Global Supply Chain Program has made unique and strong connections and relationships with General Motors and the other supplier sponsors. This aids in placing students in jobs and in initiating other joint programs, such as visits to facilities in foreign countries for our study abroad students. The competition has been one major factor in helping the Wayne State Global SCM Program grow to a size of 450 undergrad majors, and 215 MBA SCM Concentrators, with 8 full time SCM faculty, many of whom have automotive experience and/or undergrad engineering degrees.
- For WSU and Supporting Businesses - A goal of this competition is to build stronger relations between the School of Business and Southeast Michigan businesses.

Executives from regional businesses will participate in the competition as judges and network contacts.

- For WSU Students - The Goal for students is to showcase WSU Supply Chain Management students with major businesses, and to help develop internship and full time position placements.
- For General Motors and Supplier Sponsors The goal for Detroit regional businesses is to network with top students from across the United States. They will have a captive audience of top SCM business talent. General Motors and sponsoring suppliers interview students for internships and full time jobs.
- For Detroit — Students from all over North America and the world have heard about Detroit's problems and circumstances. This competition allows students and faculty to visit Detroit and see for themselves the positive opportunities and lifestyle offered by Detroit and Southeast Michigan.
  - Students will stay at the Marriott Renaissance Center in downtown Detroit. The Hotel has a beautiful vista of the City, the Detroit River, Canada across the river, and Lake St. Clair. They can ride the People Mover to Comerica Park for a Tiger game or go to the Greektown area of restaurants and nightclubs. This area is in the heart of the only downtown in the country with a soon to be four professional sports facilities (Detroit Tigers, Pistons, Lions and Red Wings) within a few blocks of each other with prospects for a fifth stadium for major league soccer.
  - Students will be taken to The Henry Ford (or another top venue) to see one of America's most unique and spectacular museums focused on the Industrial Revolution, the Brad

vehicle industry, and of course the automotive industry.

- A grand finale dinner will be hosted on one of the cruise boats on the Detroit River.
- For Visiting University Students - Students will have the opportunity to network with peers from universities around the United States and to network with top executives from sponsoring businesses. Both students and businesses will be benefitted in several ways, such as:
  - Improving their understanding of the global auto motive industry, and learning more about SCM as it related to this industry.
  - Students will be able to benchmark their abilities and academic progress with top students from other universities. In the Finals of the competition, all students will be attending and see the presentation and analysis of the finalist schools.
  - Students will have the opportunity to meet with executives in an informal environment and discuss business issues and what life is like as a supply chain professional.
  - Business executives will have access to interview the top supply chain students from around the country — an outstanding opportunity to recruit the best talent.
  - Students will learn a great deal about supply chains in complex manufacturing environments and about the tradeoffs and issues involved in running these supply chains. The case will also help them improve their teamwork and ability to work together on a complex problem.

While there are many SCM competitions, this one is differentiated from the others in several ways. First, this competition has intense industry backing, both in terms of involvement in writing the case and in terms

of the industry focus of the case, and the very major financial support across five companies in the tens and tens of thousands of dollars. It is also important to note that the case is one of the only ones in the country that relates to complex manufacturing, and more specifically the auto industry. Other competitions are not as focused on a specific industry. Complex manufacturing SCM issues are very different than those found in most industries, in that complex manufacturing involves more intense purchasing relationships leading to innovation from suppliers, more supplier development, complex quality issues, more global flows of components, and logistics flows that are inbound to a few assembly plants as opposed to flows that are from one plant to hundreds of thousands of retailers. This competition is also unique in that it deals with multiple functional areas across the broad reach of SCM, as opposed to focusing on just purchasing, operations, or logistics.

Secondly, this case competition is unique in its global nature. The actual case deals with very critical global sourcing and logistics issues every year. The case also is unique in drawing students from schools around the world. For instance, in the last two years this competition has drawn schools from China, Poland, Mexico, and Brazil. In fact, this competition led to GM Brazil organizing its own similar competition for a number of Brazilian SCM programs, with the winner coming to our competition in Detroit. The number of students from around the world is an outstanding experience for both the foreign and U.S. students.

The sheer size of this competition also makes it unique. With 23 schools it is the largest competition in the world to the best of our knowledge. Given 4 students per school, and one faculty member, we have some 115 participants each year, and have



served approximately 500 students since our first year. The size of the program also makes this competition the most strongly funded of any SCM competition in the world. Unlike most competitions, the schools at this event need to pay just their transportation costs, with our sponsors paying for hotel rooms, meals, buses, events, and the like.

Fourth, we believe this competition is unique in providing students with unparalleled opportunities to interview with Fortune 500 firms. For instance every student has an opportunity to interview with General Motors, one of the largest firms in the world, one of the most global, and one of the most high tech in the world.

### **THE CASE COMPETITION**

Business students are presented a case developed by experienced and high level automotive industry purchasing and supply chain executives. This “real world” case has breadth and depth that will challenge the participating students on many levels, such as:

- Advanced technology - in this dynamic world, today’s advanced technology can be obsolete tomorrow. Students grapple with the economic risks associated with advanced technology.
- Green supply chain - students are confronted with consumer’s demand for economically efficient business processes and the economic benefits and challenges of a green supply chain.
- Globalization - students will examine sourcing issues and choices related to domestic or global sourcing. Students may need to consider NAFTA or CAFTA or other U.S. trade agreements in their analysis. Students must understand rules, culture and trade-offs for

conducting business in Asia, Europe, or Latin America versus sourcing domestically. Transport costs, production costs, culture, laws, and currency risk together pose enormous threat and opportunity for supply chain managers. This dimension of the case has become more important today, and will potentially grow in importance if trade restrictions are increased and multinational trade blocks are eliminated. Such barriers to trade will increase the complexity of the issues and need for analysis. The case will need to reflect these types of issues going forward.

- Production and Logistics - students will be required to evaluate alternatives, and make the appropriate decision based on short term and long term benefits. They will make decisions regarding short term vs. long term issues regarding quality, plant location, start of production, and production ramp-up. They will be required to make a presentation to a judging panel composed of business executives on their recommendation.

While a variety of topics and issues are incorporated into the case and there are many possible answers, there is no one “right answer.” The winning case presentation must provide a supportable numerical solution, but also address a variety of “soft” issues. Overall, the assumptions made must be defensible, and the proposed solution must make sense to the panel of industry judges. In addition, the winning team must be able to “sell the proposal,” just like in the real world. So the winning team can be hard to select, and often there are just small differences between the teams at the regional level and in the overall finals competition.

## BUDGET

The General Motors / Wayne State Supply Chain Case Competition is a four day event with students arriving on Thursday afternoon and departing on Sunday morning. The sponsors of the GM / WSU Case Competition cover the charges for the hotel rooms for all the teams. That would be three (3) rooms for each school for three evenings (See Table 3 for budget layout for 16 team competition from 2011) which totaled approximately \$79,000. Two additional rooms per night are reserved for WSU university staff that stay at the hotel during the competition. Competition rooms for holding the case presentation must also be rented - on Friday four rooms host the competition with judges and a small audience. On Saturday, one large room for the “Finals” must be rented plus a holding room for the competitors. The competition room rent totaled \$800. Note that in more recent years the competition has been expanded to as many as 23 teams.

As noted earlier, during 2015 and 2016 the competition became a global one with the addition of teams from China, Brazil, Mexico and Poland across those two years. The foreign teams are brought in 3 nights early to allow them to adjust to time differences. This of course results in additional room, meal and other costs for these teams but the global nature of the competition is thought to be well worth the additional cost.

Bus “coaches” are rented to transport the students to business and cultural activities. 100 participants were budgeted for every activity to account for all students (16 universities), advisors, judges, sponsors, and other guests of the competition. On Friday of the 2011 competition, after the “regional” presentations and lunch, coaches transported students and their advisors to the Detroit-Hamtramck Assembly Plant. On Saturday morning of the first competition in 2011, Coaches transported students and advisors to the Henry Ford Museum in Dearborn, MI. The cost of these coaches was \$2800 and tickets to the Henry Ford museum totaled \$2,000.

## CHALLENGES

The hosting and organization of a collegiate case competition entails its share of complexities. Below is a summary of many complexities that challenge the hosting of a case competition.

The General Motors / Wayne State Competition is held in late September / early October for a number of reasons including:

- Timing
  - Start of school / Exams - for a case presented to students prior to the competition, there must be time for participating advisors to assemble a team and for the team to prepare their solution and presentation. Hosting a competition in early fall avoids major exams, but since many students are out of touch during the summer, assembling a team is challenging. Also, students have campus extracurricular activities that compete with case competitions (e.g. football season). Later in the semester, important class assignments are due (midterms), and later, final exams are a concern. The GM/WSU competition, in early October, allows students to get settled in classes, but preceeds (hopefully) major assignments and exams.
  - Weather - Fall weather in Michigan is arguably the best season of the year for our region. Later in October gets cold, and March / April can be very unpredictable.
  - Conflicts with Academic Conferences - academic conferences occur throughout the year and faculty must attend those to remain current on research and teaching, and maintain networking contacts for research. Two conferences that occur near the time of the GM/WSU conference are Council of Supply Chain Management Professionals (CSCMP) and American



**TABLE 3**  
**2011 GENERAL MOTORS/WAYNE STATE CASE COMPETITION BUDGET**

Day	Activity	Comment
Thursday 6-9pm	Registration/Reception	\$14x100 cash bar
Overnight	Hotel	50 x \$126.50
Friday 7 - 8:30	Breakfast	\$25 x 100
Friday 8:30 - noon	Competition	4 rooms @ \$100
Friday 12 - 1pm	Lunch - Speaker	100 @ \$34
Friday 12 - 1pm	Audio / Vis	
	Hamtrammck	
Friday 1:30 - 5pm	Assembly	2 coaches @ 600
	Tigers baseball and	
Friday 6 - 10pm	Picnic	100 @ \$34
Overnight	Hotel	50 @ \$126.50
Saturday 7 - 8:30	Breakfast	\$25 x 100
Saturday 9am - noon	Henry Ford Museum	20 x 100
Saturday 9am - noon	Transportation	2 coaches @ 600
Saturday 12:30 - 1:30	Lunch - Speaker	100 @ 34
Saturday 12:30 - 1:30	Audio / Vis	
		1 lrg. 1 hldng ;
Saturday 2 - 5:30	Competition rooms	\$400
Saturday 6 - 10pm	Dinner on River	64 X 100
Awards & Placques		5000 + 400
Overnight	Hotel	50 x \$126.50
Gratuity	Gratuity	

- Production and Inventory Control Society (APICS).
- Conflicts with other Case Competitions - this is not presently a serious challenge, as other competitions are not scheduled as early in the academic year as ours. Our competition, being specialized in automotive supply chain, will likely attract schools with interest in that area. Also, our competition is inexpensive in that the sponsors pay for the hotel, meals, and activities as opposed to other competition, where schools must pay for rooms and activities.
- Conflicts with Detroit events - possible challenges are Lions

football games and Detroit Tigers games, causing hotel rooms to be in high demand.

○  
Other challenges relate to team size and case development as follows:

- Team Size
  - Competitions range team sizes between 3 and 4. The team size for the GM / WSU competition is four. Ideally, two male students and two female students represent each school, and then the hotel rooms can be shared by two students. Occasionally teams come with three males or three females and one of the other gender. Sometimes all four team members are the same gender.

- Immigration Restrictions
  - Given the number of foreign teams the recent trend towards nationalism and restrictions on the free flow of people and goods presents a challenge. This challenge can be seen in the already complex issues involved in getting foreign teams visas in time to attend the competition. These overseas teams may have students not just from their home country but from several other countries as well. In addition to the foreign teams, many of the U.S. based universities may have foreign born students on a team and they may be nervous about travelling through airports and subjecting themselves to intrusive questioning and searches.
- Case Development and Publication
  - For the General Motors / Wayne State Competition, the case is fictional, yet based on an actual or potential problem. The case must be composed, edited, solved, and delivered to the students approximately one month prior to the competition. General Motors supply chain managers write the case with the assistance of Wayne State faculty. The case must also be distributed to judges who need to read and understand the case. As a part of judge training, notes and guidelines are provided to them (think Cliff Notes), in order to give them a notion of what general answers are expected from the competitors.

While these challenges have presented a number problems, so far the sponsors and Wayne State have been able to overcome the potential obstacles. One of the biggest issues has been when to hold the competition. Determining the date requires juggling issues related to weather in Michigan in the Fall, the

short time between the return to classes (especially for east coast schools) and the date when the case goes out to students a month in advance of the competition date, other case competitions, and various professional association meetings in the Fall such as CSCMP. That is not to mention other issues such as the availability of the hotel, plant operations related to holding a tour, and availability of the various rooms and reception facilities. However, by planning carefully every year, and working early with schools to make sure they are on top of the competition dates, we have been able to come up with a viable date for the vent. Saying that, the weather can be a bigger challenge!

One of the other critical issues Other issues involves case development. This is a joint effort by Wayne State, GM and the other sponsors. The case preparation begins months in advance. A large team of GM personnel lead the case development, from a wide range of functions, so developing a case that is understandable, solvable, and not too hard or too easy is a difficult challenge. But again, by having multiple reviews and working together we believe we have achieved a good balance. Another issue is that we must and do create a firewall between the Wayne State case administration team, and the Wayne State faculty/students that are participating as one of the teams. This is of course necessary to make sure the Wayne State does not have an unfair advantage. We believe we have achieved this by really keeping the Wayne State team faculty member picking and overseeing our team from any information whatsoever about the case.

## CONCLUSIONS

Bill Hurles, former Executive Director of Supply Chain for General Motors and GM's Champion for the Case Competition has stated that "The WSU/ GM Supply Chain Case Competition, now in its 6<sup>th</sup> year, has been an incredible opportunity to help challenge Supply Chain Students with real business situations requiring teamwork, rapid research, and presentation skills. It helps expose them to the Automotive Industry and complexities of managing a fast paced global supply chain enterprise. The format of the competition also broadens each

participant's network to industry leaders and fellow students, while also touring one of GM's most complex automotive assembly plants and time for fun/relaxation in Detroit's growing downtown district [8]."

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